Application No. 09/710,827
Attorney Docket No. 11727US03

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS

1-33. (Canceled)

34. (Currently Amended) In a communication system adapted to transmit a communication signal comprising ~~an input speech component and~~ an input tonal component, apparatus for maintaining the input tonal component comprising:

an input for receiving the communication signal;

a processor arranged to:

detect the input tonal component;

generate a second tonal component ~~independent of the input tonal component~~ in response to the input tonal component, wherein the second tonal component has a frequency matched to the input tonal component frequency; and

generate an output signal ~~responsive to said input signal~~, the output signal comprising at least in part the second tonal component and at least in part the input tonal component, wherein said output signal has an output signal time duration and said output signal time duration is greater than the time duration of said input tonal component; and

an output for transmitting the output signal, including the second tonal component.

35. (Previously Presented) Apparatus as claimed in claim 34 wherein the input tonal component and the second tonal component each comprises a dual-tone multi-frequency (DTMF) signal.

36. (Previously Presented) Apparatus as claimed in claim 34 wherein the input tonal component and the second tonal component each comprises a facsimile tone signal.

37. (Previously Presented) Apparatus as claimed in claim 34 wherein the input tonal component and the second tonal component each comprises a dial tone signal.

38. (Previously Presented) Apparatus as claimed in claim 34 wherein the input tonal component and the second tonal component each comprises a busy tone signal.

39. (Previously Presented) Apparatus as claimed in claim 34 wherein the input tonal component is processed by the processor in blocks of samples and wherein the processor detects the presence of the input tonal component after processing a predetermined number of the blocks.

40. (Previously Presented) Apparatus as claimed in claim 34 wherein the processor is arranged to generate the second tonal component in the output signal during

a first time period and wherein the processor is arranged to suppress the output signal for a second time period after the first time period has ended.

41. (Previously Presented) Apparatus as claimed in claim 34 wherein the processor comprises one or more of combinatorial and sequential logic, an application specific integrated circuit, a central processing unit executing software and a digital signal processor executing software.

42. (Previously Presented) Apparatus, as claimed in claim 34 wherein at least a frequency of the second tonal component is substantially identical to a frequency of the input tonal component.

43. (Previously Presented) Apparatus as claimed in claim 34 wherein the apparatus is for maintaining the input tonal component by extending the input tonal component, wherein the input tonal component has a phase and a frequency, wherein the output signal comprises at least in part the input tonal component and at least a part of the second tonal component and wherein the processor is arranged to generate the second tonal component with a phase and frequency derived from the phase and frequency of the input tonal component.

44. (Previously Presented) Apparatus, as claimed in claim 43, wherein the phase and frequency of the second tonal component are substantially identical to the phase and frequency of the input tonal component.

45. (Previously Presented) Apparatus as claimed in claim 34 wherein the apparatus is for maintaining the input tonal component by regenerating the input tonal component, wherein the processor suppresses the input tonal component, and wherein the second tonal component in the output signal is maintained for a predetermined minimum duration.

46. (Previously Presented) Apparatus as claimed in claim 45 wherein the input tonal component is processed in blocks of samples and wherein the processor detects the input tonal component during the first received block of the input tonal component and wherein the output signal including the second tonal component is commenced during a block of the input tonal component samples displaced from the first block by a predetermined number of blocks.

47. (Previously Presented) Apparatus as claimed in claim 46 wherein the generation of the second tonal component continues after the termination of the input tonal component by a duration proportional to the duration of the predetermined number of blocks.

48. (Currently Amended) In a communication system adapted to transmit a communication signal comprising ~~an input speech component and~~ an input tonal component, a method of maintaining the input tonal component comprising:

receiving the communication signal;

detecting the input tonal component;

generating a second tonal component ~~independent of the input tonal component~~ in response to the input tonal component, wherein the second tonal component has a frequency matched to the input tonal component frequency;

generating an output signal responsive to the input signal, the output signal comprising at least in part the second tonal component and at least in part the input tonal component, wherein said output signal has an output signal time duration and said output signal time duration is greater than the time duration of said input tonal component;; and

transmitting the output signal, including the second tonal component.

49. (Previously Presented) A method as claimed in claim 48 wherein the input tonal component and the second tonal component each comprises a dual-tone multi-frequency (DTMF) signal.

50. (Previously Presented) A method as claimed in claim 48 wherein the input tonal component and the second tonal component each comprises a facsimile tone signal.

51. (Previously Presented) A method as claimed in claim 48 wherein the input tonal component and the second tonal component each comprises a dial tone signal.

52. (Previously Presented) A method as claimed in claim 48 wherein the input tonal component and the second tonal component each comprises a busy tone signal.

53. (Previously Presented) A method as claimed in claim 48 and further comprising processing the input tonal component in blocks of samples and wherein the detecting occurs after processing a predetermined number of the blocks.

54. (Previously Presented) A method as claimed in claim 48 wherein the generating an output signal comprises:

generating the second tonal component in the output signal during a first time period; and

suppressing the output signal for a second time period after the first time period has ended.

55. (Previously Presented) A method as claimed in claim 48 wherein at least a frequency of the second tonal component is substantially identical to a frequency of the input tonal component.

56. (Previously Presented) A method as claimed in claim 48 wherein the method is for maintaining the input tonal component by extending the input tonal component, wherein the input tonal component has a phase and a frequency, wherein the output signal comprises at least in part the input tonal component and at least a part of the second tonal component and wherein the generating the second tonal component comprises generating the second tonal component with a phase and frequency derived from the phase and frequency of the input tonal component.

57. (Previously Presented) A method, as claimed in claim 56, wherein the phase and frequency of the second tonal component are substantially identical to the phase and frequency of the input tonal component.

58. (Previously Presented) A method as claimed in claim 48 wherein the method is for maintaining the input tonal component by regenerating the input tonal component, wherein the method further comprises suppressing the input tonal component, and wherein the generating a second tonal component comprises maintaining the second tonal component for a predetermined minimum duration.

59. (Previously Presented) A method as claimed in claim 58 and further comprising processing the input tonal component in blocks of samples wherein the

detecting comprises detecting the input tonal component during the first received block of the input tonal component and wherein the generating an output signal comprises commencing the second tonal component of the output signal during a block of the input tonal component samples displaced from the first block by a predetermined number of blocks.

60. (Previously Presented) A method as claimed in claim 59 wherein the generating a second tonal component continues after the termination of the input tonal component by a duration proportional to the duration of the predetermined number of blocks.

61. (Previously Presented) The apparatus as claimed in claim 34 wherein the processor comprises at least one oscillator for generating the second tonal component.

62. (Previously Presented) The apparatus as claimed in claim 34 wherein the frequency of the second tonal component corresponds to a frequency of the input tonal component.

63. (Previously Presented) The method as claimed in claim 48 wherein the generating a second tonal component comprises using at least one oscillator to generate the second tonal component.

64. (Previously Presented) The method as claimed in claim 48 wherein frequency of the second tonal component corresponds to a frequency of the input tonal component..

Please add the following new claim:

65. (New) A method for generating a supplemented tonal signal, said method including:

detecting the presence of an input tonal signal;

detecting the frequency and phase of said input tonal signal;

generating a supplemental tonal signal using a recursive oscillator, wherein said supplemental tonal signal is matched to the frequency and phase of said input tonal signal; and

combining said input tonal signal and said supplemental tonal signal to form an output tonal signal, wherein said supplemental tonal signal and said output tonal signal are combined using a weighted average, wherein the time duration of said output tonal signal is greater than said input tonal signal and the output tonal signal has the same frequency as the input tonal signal.